

LIGHT SCULPTURE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a general purpose light sculpture, and more particularly to a light sculpture having a form to present a three-dimensional (3D) effect. The light sculpture is provided with an outer surface which is composed of a supporting frame and a thermoplastic layer mounted on top of the supporting frame. The supporting frame is then mounted on top of a light string and the light string is subsequently mounted on top of a base frame. Therefore a year-round light sculpture is provided to be displayed outdoors or indoors.

2. Description of Related Art

It is a global custom to have all kinds light sculptures displayed outside the house to match the seasonal festivals. Some light sculptures are made of boards such as the one disclosed in U.S. Pat. No. 5,534,135, which has a board with multiple through holes defined in a distal edge of the board to correspond to light bulbs such that the entire contour of the board is illuminated by the light bulbs after the light bulbs are placed in the corresponding through holes. However, due to the material of the board being opaque, the board does not emanate enough festive spirit in the nights. In U.S. Pat. No. 5,955,156, a board made of transparent material is disclosed so that the board is able to attract the attention of passers-by. Even though this light sculpture does attract attention, the light is still limited to a two-dimensional presentation. Further, the outer surface is flat so that when the light is lit in snowing and icy winter times, the flat

1 outer surface of the light sculpture can not reflect through the refraction from the
2 ice. Other light sculptures may include a Santa Claus, sled and reindeers at
3 Christmas time and a Jack-O-Lantern at Halloween. These lights may have
4 different forms despite the material that is adopted to make the lights, but none of
5 the light sculptures is able to present a vivid outline that is able to present
6 different colors according to the actual model nor can allow any colors to
7 penetrate so that a variety of vivid colors of the light would able to emanate
8 joyful and colorful seasonal spirits.

9 To overcome the shortcomings, the present invention tends to provide an
10 improved light sculpture to mitigate the aforementioned problems.

11 SUMMARY OF THE INVENTION

12 The primary objective of the present invention is to provide an improved
13 light sculpture having a thermoplastic layer mounted on a supporting frame
14 which is securely connected to a base frame to securely sandwich therebetween a
15 light string so that the light from the light string is able to pass through the
16 thermoplastic layer to show both the refraction and reflection of light. After the
17 light is refracted and/or reflected by the thermoplastic plastic, a vivid 3D object
18 is formed.

19 Another objective of the present invention is that the supporting frame is
20 a membrane made of a transparent material to allow the light of the light string to
21 pass through. Due to the provision of the supporting frame, the thermoplastic
22 layer is easily employed onto the supporting frame to form a contour of an
23 intended object.

24 Yet another objective of the present invention is that different colors can

1 be implemented on the supporting frame to increase decorative effect of the
2 object.

3 Other objects, advantages and novel features of the invention will
4 become more apparent from the following detailed description when taken in
5 conjunction with the accompanying drawings.

6 BRIEF DESCRIPTION OF THE DRAWINGS

7 Fig. 1 is an exploded perspective view of the light sculpture of the
8 present invention;

9 Fig. 2 is an exploded perspective view of another preferred embodiment
10 of the light sculpture of the present invention;

11 Fig. 3 is a schematic view showing the formation of the thermoplastic
12 layer on top of the supporting frame; and

13 Fig. 4 is a perspective view of the finished light sculpture.

14 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

15 With reference to Fig. 1, the light sculpture in accordance with the
16 present invention includes a base frame (1), a light string (2), a supporting frame
17 (3) and a thermoplastic layer (4).

18 The base frame (1) is preferably constructed by steel wires to create a
19 form. In the preferred embodiment shown in Fig. 1, the form of the base frame (1)
20 is a deer.

21 The light string (2) also known as rope light has an outer transparent
22 casing and multiple light emitting diodes received in the outer transparent casing.
23 The material chosen for the outer transparent casing is resilient so that the light
24 string is able to be wound around a contour of the base frame (1).

1 The supporting frame (3) is composed of portions corresponding to
2 portions of the base frame (1). That is, the supporting frame (3) is able to be
3 mounted around the base frame (1) to sandwich the light string (2) therebetween.
4 Because the base frame (1) is made by steel wires, large gaps are defined
5 everywhere, which is disadvantageous for mounting anything thereon in that the
6 object mounted on top of the base frame (1) is easily caved in since there is
7 nothing to support the weight of the object. If the gaps are made smaller by using
8 much more steel wires, the manufacture cost is high. Therefore, the supporting
9 frame (3) is woven on the base frame (1) to fill gaps in the base frame (1) so as to
10 facilitate the application of the thermoplastic layer. Further, because the
11 supporting frame (3) is made of plastic and by weaving plastic strips together
12 such that the supporting frame (3) is able to be mounted along the contour of the
13 base frame (1). In another preferred embodiment as shown in Fig. 2, it is noted
14 that the supporting frame (3') may be a transparent membrane which is about to
15 be applied to cover all over the base frame (1) to sandwich therebetween the light
16 string (2).

17 The thermoplastic layer (4) preferably made of polyvinyl chloride (PVC)
18 is applied on the supporting frame (3) to cover all the supporting frame (3).

19 With reference to Fig. 3, a thermoplastic material (5) is heated to be
20 liquefied and then the liquefied thermoplastic is applied by a dispenser (6) on the
21 supporting frame (3,3'). If the supporting frame (3) is made of plastic, the
22 application of the liquefied thermoplastic covers the gaps between two adjacent
23 steel wires of the base frame (1) to form a "skin" of the form of the base frame
24 (1). If the supporting frame (3) is made of a transparent membrane, the

1 application of the liquefied thermoplastic covers all the transparent membrane
2 and all the base frame (1) to also form a “skin” to correspond to the form of the
3 base frame (1).

4 With reference to Fig. 4, after the application of the liquefied
5 thermoplastic (5) to form a thermoplastic layer (4) on the outside of the
6 supporting frame (3,3’), the skin of the thermoplastic layer (4) substantially
7 covers the supporting frame (3,3’).

8 Because the thermoplastic layer (4) is randomly formed on top of the
9 supporting frame (3,3’), the skin is irregular in thickness and surface angle.
10 Therefore, when the light string (2) is lit, not only is the light from the light string
11 (2) able to pass through the thermoplastic layer (4), but also the light from the
12 light string (2) will be reflected and refracted by the irregularity of the
13 thermoplastic layer (4), which increases the visual effect of the light sculpture.

14 It is to be understood, however, that even though numerous
15 characteristics and advantages of the present invention have been set forth in the
16 foregoing description, together with details of the structure and function of the
17 invention, the disclosure is illustrative only, and changes may be made in detail,
18 especially in matters of shape, size, and arrangement of parts within the
19 principles of the invention to the full extent indicated by the broad general
20 meaning of the terms in which the appended claims are expressed.